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09/382,875 25 August 1999 (25.08.1999) **US**(71) Applicant (for all designated States except US): **SPOTWARE TECHNOLOGIES, INC.** [US/US]; 4545 Towne Centre Court, San Diego, CA 92121-3030 (US).

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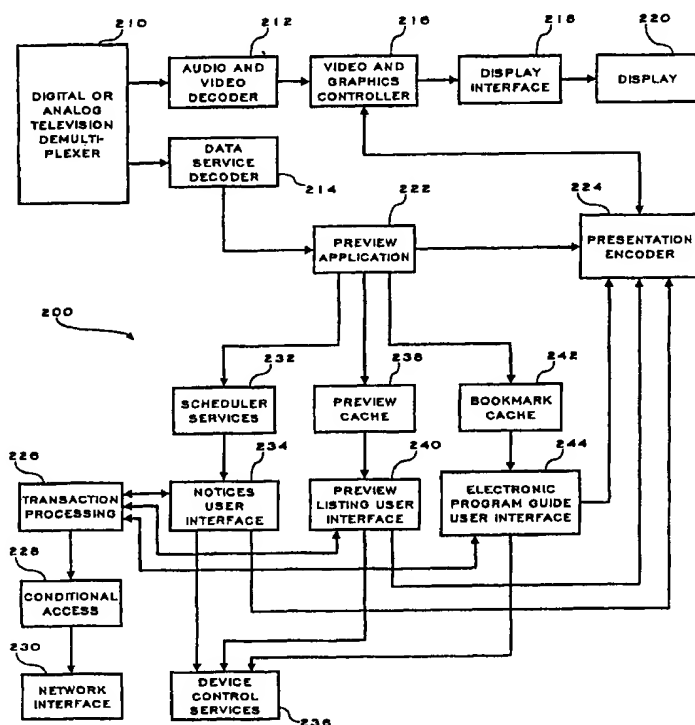
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(54) Title: **SYSTEM AND METHOD FOR SCHEDULING EVENTS RELATED TO TELEVISION PREVIEWS**

(57) **Abstract:** A method and system for scheduling an event related to a preview is disclosed. A transmitted signal comprising a video component and a data component is received by a demultiplexer (210) and decoded by a data decoder (214) such that the video component may be displayed on a display (220) and the data component may be interpreted. The data component includes a preview of the event including a date and time of the event. The preview may be displayed on the display by a preview presentation encoder (224), and an event based upon the preview may be scheduled. If desired, one or more previews may be stored in a preview cache (238) for viewing at a later time. A scheduler services routine allows the event to be scheduled for a future time such that the user may be reminded of the event or the event may be recorded and viewed at a convenient time. A bookmark of the event, such as a hypertext link, may be stored in a cache (242) accessible by an electronic program guide such that a user may access the event via the bookmark at a future time.

SYSTEM AND METHOD FOR SCHEDULING EVENTS RELATED TO  
TELEVISION PREVIEWS

FIELD OF THE INVENTION

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The present invention generally relates to the field of information handling systems, and particularly to receiving previews of future events with an information handling system.

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BACKGROUND OF THE INVENTION

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Convergence systems typically receive a broadcast preview of an upcoming, future event. The upcoming event may be a television program, pay-per-view event, data service, or any such similar service. Scheduling information for the event being previewed is often encoded with the preview. The scheduling information may include the type of event, start time, end time, duration, channel, service identifier, and other similar characteristics. Broadcast signals may contain multiple components that are multiplexed for transmission and then demultiplexed by a receiving device such that the individual components may be reproduced as necessary by the receiving device. For example, a television signal may contain video, audio, and data components that are decoded by the receiving unit such that the video component may be sent to a display for displaying video information and the audio component may be sent to an amplifier and speaker system for reproducing audio information. The data component may include identifying information such as the station identification of the station broadcasting the signal that is not displayed on a display or reproduced by an amplifier and speaker system but which is decodable and may be interpreted by an appropriate receiving device. It would be highly desirable to provide a method and system that transmits an event preview along with the other components of a broadcast signal such that a receiving device may decode the components, store and/or display the event preview, and schedule or bookmark the event such that a user may record the event or be reminded of the time, station, etc. of the event as desired.

## SUMMARY OF THE INVENTION

The present invention is directed to a method for scheduling an event related to a preview. In one embodiment, the method includes steps for receiving a transmitted signal, the transmitted signal comprising a video component and a data component, the data component including a preview of the event including a date and time of the event, decoding the television signal whereby the video component may be displayed on a display and the data component may be interpreted, determining whether to display the preview, and if so determined, then displaying the preview on the display, determining whether to schedule the event based upon the preview, and if so determined, then scheduling the event.

The present invention is further directed to a system for scheduling an event related to a preview. In one embodiment, the system includes a processor for executing a program of instructions, a memory coupled to the processor for storing the program of instructions, a demultiplexer for receiving a transmitted signal and demultiplexing the signal into signal components, the signal having a data component including a preview of the event, a decoder for decoding the data component, and a presentation encoder for causing the preview to be displayed in a display, the program of instructions including a preview application for causing a preview received by the decoder to be sent to said presentation encoder, and a scheduler services routine for causing the event of the preview received by the preview application to be scheduled for a future time.

It is to be understood that both the forgoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention as claimed. The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate an embodiment of the invention and together with the general description, serve to explain the principles of the invention.

## BRIEF DESCRIPTION OF THE DRAWING

The numerous advantages of the present invention may be better understood by those skilled in the art by reference to the accompanying figures in which:

FIG. 1 is a block diagram of an information handling system operable to embody the present invention;

FIG. 2 is a block diagram of a system for scheduling events related to television previews in accordance with the present invention; and

FIG. 3 is a flow diagram of a method for scheduling an event related to a preview in accordance with the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to the presently preferred embodiment of the invention, an example of which is illustrated in the accompanying drawings.

Referring now to FIG. 1, a hardware system in accordance with the present invention is shown. The hardware system shown in FIG. 1 is generally representative of the hardware architecture of an information handling system of the present invention. A central processor 102 controls the information handling system 100. Central processor 102 includes a central processing unit such as a microprocessor or microcontroller for executing programs, performing data manipulations and controlling the tasks of information handling system 100. Communication with central processor 102 is implemented through a system bus 110 for transferring information among the components of information handling system 100. Bus 110 may include a data channel for facilitating information transfer between storage and other peripheral components of information handling system 100. Bus 110 further provides the set of signals required for communication with central processor 102 including a data bus, address bus, and control bus. Bus 110 may comprise any state of the art bus architecture according to promulgated standards, for example industry standard architecture (ISA), extended

industry standard architecture (EISA), Micro Channel Architecture (MCA), peripheral component interconnect (PCI) local bus, standards promulgated by the Institute of Electrical and Electronics Engineers (IEEE) including IEEE 488 general-purpose interface bus (GPIB), IEEE 696/S-100, and so on.

Furthermore, bus 110 may be compliant with any promulgated industry standard. For example, bus 110 may be designed in compliance with any of the following bus architectures:

Industry Standard Architecture (ISA), Extended Industry Standard Architecture (EISA), Micro Channel Architecture, Peripheral Component Interconnect (PCI), Universal Serial Bus (USB), Access.bus, IEEE P1394, Apple Desktop Bus (ADB), Concentration Highway Interface (CHI), Geo Port, or Small Computer Systems Interface (SCSI), as examples.

Other components of information handling system 100 include main memory 104, auxiliary memory 106, and an auxiliary processor 108 as required. Main memory 104 provides storage of instructions and data for programs executing on central processor 102. Main memory 104 is typically semiconductor based memory such as dynamic random access memory (DRAM) and or static random access memory (SRAM). Auxiliary memory 106 provides storage of instructions and data that are loaded into the main memory 104 before execution. Auxiliary memory 106 may include semiconductor based memory such as read-only memory (ROM), programmable read-only memory (PROM) erasable programmable read-only memory (EPROM), electrically erasable read-only memory (EEPROM), or flash memory (block oriented memory similar to EEPROM). Auxiliary memory 106 may also include a variety of non-semiconductor based memories, including but not limited to magnetic tape, drum, floppy disk, hard disk, optical, laser disk, compact disc read-only memory (CD-ROM), digital versatile disk read-only memory (DVD-ROM), digital versatile disk random-access memory (DVD-RAM), etc. Other varieties of memory devices are contemplated as well.

Information handling system 100 may optionally include an auxiliary processor 108 which may be a digital signal processor (a special-purpose microprocessor having an architecture suitable for fast execution of signal processing algorithms), a

back-end processor (a slave processor subordinate to the main processing system), an additional microprocessor or controller for dual or multiple processor systems, or a coprocessor. Information handling system 100 further includes a display system 112 for connecting to a display device 114, and an input/output (I/O) system 116 for connecting to one or more I/O devices 118, 120, and up to N number of I/O devices 122. Display system 112 may comprise a video display adapter having all of the components for driving the display device, including video random access memory (VRAM), buffer, and graphics engine as desired. Display device 114 may comprise a cathode ray-tube (CRT) type display such as a monitor or television, or may comprise alternative type of display technologies such as a liquid-crystal display (LCD), a light-emitting diode (LED) display, or a gas or plasma display. Input/output system 116 may comprise one or more controllers or adapters for providing interface functions between one or more of I/O devices 118-122. For example, input/output system 116 may comprise a serial port, parallel port, infrared port, network adapter, printer adapter, radio-frequency (RF) communications adapter, universal asynchronous receiver-transmitter (UART) port, etc., for interfacing between corresponding I/O devices such as a mouse, joystick, trackball, trackpad, trackstick, infrared transducers, printer, modem, RF modem, bar code reader, charge-coupled device (CCD) reader, scanner, compact disc (CD), compact disc read-only memory (CD-ROM), digital versatile disc (DVD), video capture device, touch screen, stylus, electroacoustic transducer, microphone, speaker, etc. Input/output system 116 and I/O devices 118-122 may provide or receive analog or digital signals for communication between information handling system 100 of the present invention and external devices, networks, or information sources. Input/output system 116 and I/O devices 118-122 preferably implement industry promulgated architecture standards, including Recommended Standard 232 (RS-232) promulgated by the Electrical Industries Association, Infrared Data Association (IrDA) standards, Ethernet IEEE 802 standards (e.g., IEEE 802.3 for broadband and baseband networks, IEEE 802.3z for Gigabit

Ethernet, IEEE 802.4 for token passing bus networks, IEEE 802.5 for token ring networks, IEEE 802.6 for metropolitan area networks, 802.11 for wireless networks, and so on), Fibre Channel, digital subscriber line (DSL), asymmetric digital subscriber line (ASDL), frame relay, asynchronous transfer mode (ATM), integrated digital services network (ISDN), personal communications services (PCS), transmission control protocol/Internet protocol (TCP/IP), serial line Internet protocol/point to point protocol (SLIP/PPP), and so on. It should be appreciated that modification or reconfiguration of information handling system 100 of FIG. 1 by one having ordinary skill in the art would not depart from the scope or the spirit of the present invention.

Referring now to FIG. 2, a block diagram of a system for scheduling events related to television previews in accordance with the present invention will be discussed. System 200 may be implemented by information handling system 100 as a hardware device of information handling system 100, a program of instructions (e.g., software) executed by information handling system 100, or by a combination of hardware and software. In the event of a program of instructions, the program of instructions configure information handling system 100 to implement system 200. Demultiplexer 210 receives a television signal and demultiplexes the signal if the signal is a digital signal, or decodes the signal if the signal is analog, into its elementary streams (e.g., audio, video, data, etc.). Decoder 212 decodes and digitizes the audio and video components of the signal. Data service decoder 214 decodes the data component of the signal and either executes instructions contained within the data or stores the data in a memory such as memory 104 or 106 as appropriate. Video and graphics controller 216 combines the video components of the signal with a graphics user interface and on-screen display or displays. Display interface 218 encodes the video and graphics into a display format. Display 220 displays the video and graphics in a format viewable by a user.

If the television program contains preview information, a preview application program 222 executes the preview. Preview

application 222 may be embedded in system 200 or may be a self-executing program broadcast as part of the television signal (i.e. the data component). A presentation encoder 224 generates a graphical user interface that is overlaid on, combined with,  
5 or replaces the video signal being displayed in display 220. Depending upon which functions are supported in the implementation by system 200, the user may select to schedule a recording at the time of the preview, operate on the preview at a later time, or set up a book mark in an electronic program  
10 guide (a database or program in which programming information is stored and accessed with or executed by information handling system 100).

The user may select to schedule a recording of the preview via execution of a scheduler services routine 232. If required, the  
15 user may need to purchase the event, or the user may be required to verify that the user has access rights to the event, for example by entering a password or code. In this case, scheduler 232 can immediately access the transaction processing routing 226 that thereupon interfaces with  
20 conditional access system 228. Some transaction systems and conditional access systems require a return channel by coupling with a remote server via network interface 230. When the scheduled event is triggered (at the appropriate time), a notices user interface 234 notifies the user of the event.

25 Notices user interface 234 may also need to interface with transaction processing routine 226. The notification starts the recording by interfacing with device control routine 236. If the user selects (or alternatively system 200 only supports) to operate on previews at a later time, the preview information  
30 may be stored on system 200 in a preview cache or database 238. The preview information would include the scheduling information, but it may also include the audio, video, and graphics material. The user can access the cached information through a preview listing interface 240, preferably a graphical  
35 user interface, or record the last previewed event through a remote control button or graphical user interface displayed on display 220.

Further, the user may select (or alternatively system 200 may



only support) to bookmark the event in an electronic program guide. This may result in a graphical indicator in the electronic program guide user interface 244, a separate graphical user interface containing bookmarked events, a reminder notification graphical user interface, or some combination thereof. Bookmarks are stored in a bookmark cache or database 242. The electronic program guide example is generated by electronic program guide user interface 244. Preview application 222 thus is capable of performing three basic operations that may be implemented independently or in any combination with one another. The operations include, but are not limited to, scheduling the recording or caching of the event, caching the preview information for later access, and storing a bookmark to the event in the electronic program guide. Each of these three applications may access a transaction system if necessary.

A user may optionally schedule the recording of an event during a commercial relevant to the event. For example, the preview may be broadcast as a commercial or in conjunction with a commercial. The user is not required to utilize an electric program guide for this type of function. Events may include television type events or scheduled data services. Preview information may be stored on information handling system 100 (e.g., in auxiliary memory 106 implementing preview cache 238) as the user sees the preview. At a later time, the user can display previously viewed previews and schedule a recording, buy the event, or schedule a reminder. The user can schedule a reminder for an event during a commercial relevant to the event.

Referring now to FIG. 3, a flow diagram of a method for scheduling an event related to a preview in accordance with the present invention is shown. The method 300 may be implemented as a program of instructions storable on a medium readable by information handling system 100 that cause information handling system to execute the steps of method 300. Method 300 begins when a signal such as a television signal is received at step 310. The signal is decoded into components at step 312 by demultiplexer 210. The video component of the signal is

displayed on display 220 at step 314. Further, an audio component of the signal may be reproduced through an amplifier and speaker system simultaneously with the displaying of the video component e.g., where the audio component of the signal is intended to accompany the video component of the signal (not shown). A determination is made at step 316 whether to display a preview received as a component of the signal. In the event it is determined not to display the preview, the preview may be stored at step 318 in a database or other storage medium of information handling system 100 such as main memory 104 or auxiliary memory 106. If it is determined to display the preview, the preview may be displayed at step 320 on display 220. Displaying step 320 may comprise displaying the preview in lieu of the video component of the signal, or may comprise displaying the preview simultaneously or in conjunction with the video component of the information signal. For example, the preview may be displayed in a first picture or window while the video component is displayed in a second picture or window, or the preview and the video component may be displayed in a split screen view such that the preview is displayed on a first portion of display 220 and the video component is displayed on a second portion of the display (e.g., side-by-side). The preview may contain information for an upcoming, future event. For example the preview may be for a sporting event to be televised at a future time. A determination is made at step 322 whether to schedule the event, for example scheduling information handling system 100 to record the event when the event is televised or broadcast. Alternatively, a reminder may be scheduled such that a user may be reminded that the event is occurring or will soon occur (not shown). In the event it is determined not to schedule the event, a determination is made at step 324 whether to bookmark the event. If it is determined not to bookmark the event, method 316 may continue with the step 316 of determining whether to display a successive preview. If there are no further previews, method may continue from step 314 by displaying the video component of the signal. In the event it is determined to bookmark the event, the event may be bookmarked in a database such as a program guide

database 328 for future reference. Bookmarking of the event may include, for example, providing information pertaining to the source of the event such as the television station that broadcasts the event via the airwaves or a hyperlink to a server on a network such as the Internet that will broadcast or simulcast the event over the network.

In the event it is determined to schedule the event, the event may be scheduled at step 326. Scheduling step 326 may include, for example, programming information handling system 100 or a videocassette recorder (VCR) to program the recording of the event at the time and station or source of the event. A

determination is made at step 330 whether authorization of viewing or receiving the event is required. For example, the event may be a pay per view television event that requires the user to pay a television or cable company for the right or license to access and view the previewed event. In the event authorization is required, the user may authorize the event at step 332 by agreeing to pay for the event with the relevant entity or by securing payment by providing financial

information e.g., a credit card number to the entity. In the event that no authorization is required, or after authorization, the event may be tuned and/or recorded at step 334. Simultaneously or subsequently, the event may be displayed on display 220 at step 336.

Although the invention has been described with a certain degree of particularity, it should be recognized that elements thereof may be altered by persons skilled in the art without departing from the spirit and scope of the invention. One of the embodiments of the invention can be implemented as sets of instructions resident in the main memory 104 of one or more computer systems configured generally as described in FIG. 1. Until required by the computer system, the set of instructions may be stored in another computer readable memory such as auxiliary memory 106 of FIG. 1, for example in a hard disk drive or in a removable memory such as an optical disk for utilization in a CD-ROM drive, a floppy disk for utilization in a floppy disk drive, a floptical disk for utilization in a floptical drive, or a personal computer memory card for

utilization in a personal computer card slot. Further, the set of instructions can be stored in the memory of another computer and transmitted over a local area network or a wide area network, such as the Internet, when desired by the user.

- 5 Additionally, the instructions may be transmitted over a network in the form of an applet (a program executed from within another application) or a servlet (an applet executed by a server) that is interpreted or compiled after transmission to the computer system rather than prior to transmission. One
- 10 skilled in the art would appreciate that the physical storage of the sets of instructions or applets physically changes the medium upon which it is stored electrically, magnetically, chemically, physically, optically or holographically so that the medium carries computer readable information.
- 15 It is believed that the system and method for scheduling events related to television previews of the present invention and many of its attendant advantages will be understood by the forgoing description, and it will be apparent that various changes may be made in the form, construction and arrangement
- 20 of the components thereof without departing from the scope and spirit of the invention or without sacrificing all of its material advantages, the form herein before described being merely an explanatory embodiment thereof. It is the intention of the following claims to encompass and include such changes.

## CLAIMS

What is claimed is:

- 5 1. A method for scheduling an event related to a preview,  
comprising:  
receiving a transmitted signal, the transmitted signal  
comprising a video component and a data component, the data  
component including a preview of the event including a date and  
10 time of the event;  
decoding the television signal whereby the video component may  
be displayed on a display and the data component may be  
interpreted;  
determining whether to display the preview;  
15 in the event it is determined to display the preview,  
displaying the preview on the display;  
determining whether to schedule the event based upon the  
preview;  
in the event it is determined to schedule the event, scheduling  
20 the event.
2. The method as claimed in claim 1, further comprising, in the  
event it is not determined to display the preview, storing the  
preview in a database such that the preview may be subsequently  
25 retrieved from the database and displayed at a future time.
3. The method as claimed in claim 1, further comprising the  
steps of determining whether to bookmark the event, and, in the  
event it is determined to bookmark the event, bookmarking the  
30 event such that the event may be accessed via the bookmark.
4. The method as claimed in claim 1, further comprising the  
steps of determining whether the event is authorized, and, in  
the event it is determined that the event is not authorized,  
35 authorizing the event.
5. The method as claimed in claim 1, further comprising the  
steps of determining whether to record the event, and in the

event it is determined to record the event, recording the event.

6. The method as claimed in claim 1, further comprising the step of tuning to the event at the date and time of the event.

7. The method as claimed in claim 1, said scheduling step including the step of scheduling a reminder of the date and time of the event, the method further comprising the step of providing a reminder of the event to a user.

8. A system for scheduling an event related to a preview, comprising:

a processor for executing a program of instructions;

a memory coupled to said processor for storing the program of instructions;

a demultiplexer for receiving a transmitted signal and demultiplexing the signal into signal components, the signal having a data component including a preview of the event;

a decoder for decoding the data component;

a presentation encoder for causing the preview to be displayed on a display;

the program of instructions including a preview application for causing a preview received by said decoder to be sent to said presentation encoder, and a scheduler services routine for causing the event of the preview received by said preview application to be scheduled for a future time.

9. The system as claimed in claim 8, further comprising a preview cache for storing the preview such that said presentation encoder may cause the preview to be displayed on the display at a future time.

10. The system as claimed in claim 8, further comprising a bookmark cache for bookmarking the event in an electronic program guide such that the event may be accessed at a future time via a bookmark stored in said bookmark cache.

11. The system as claimed in claim 8, further comprising a notices user interface for notifying a user of the event at a predetermined time.

- 5 12. The system as claimed in claim 8, further comprising a transaction processing routine, coupled with said notices user interface, for obtaining authorization of the event.

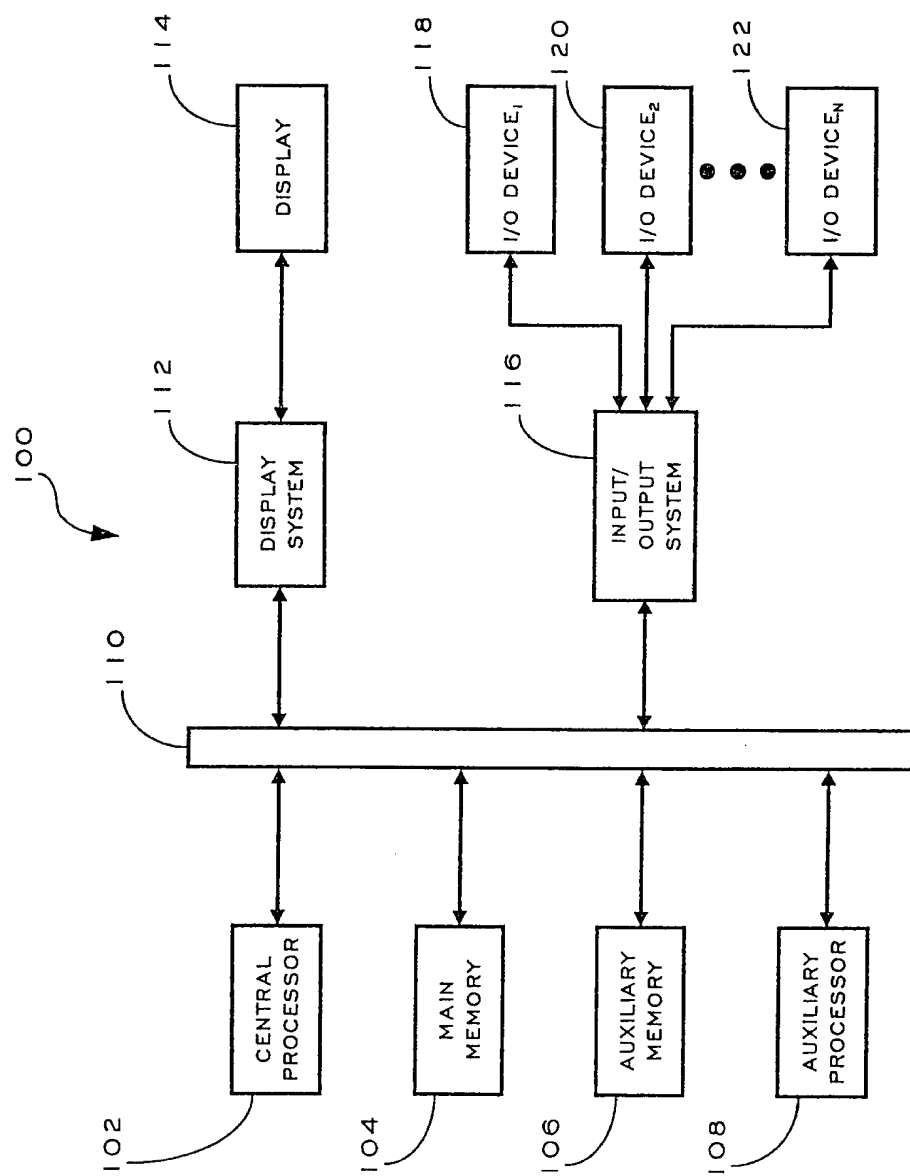


FIG. 1



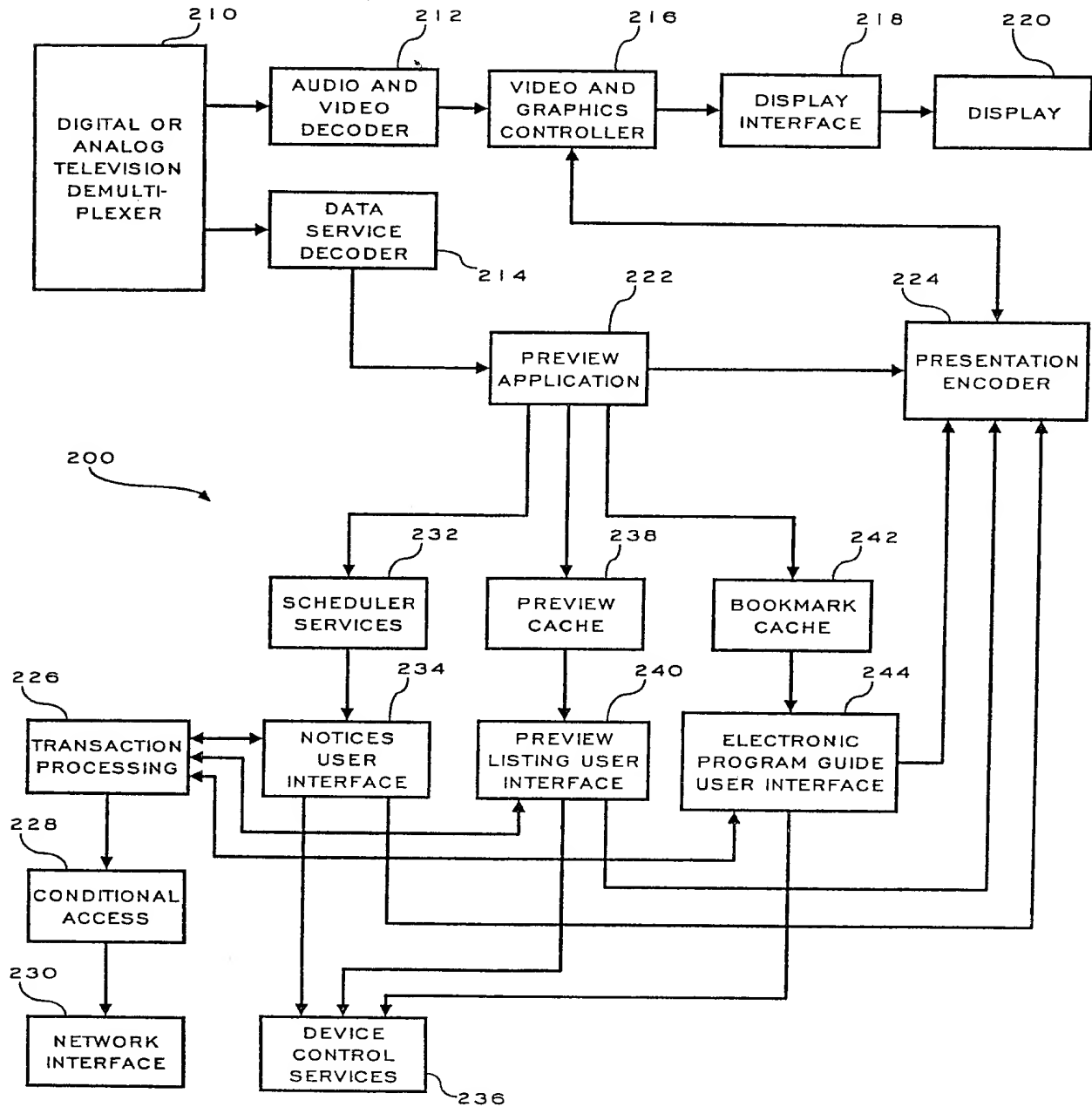


FIG. 2

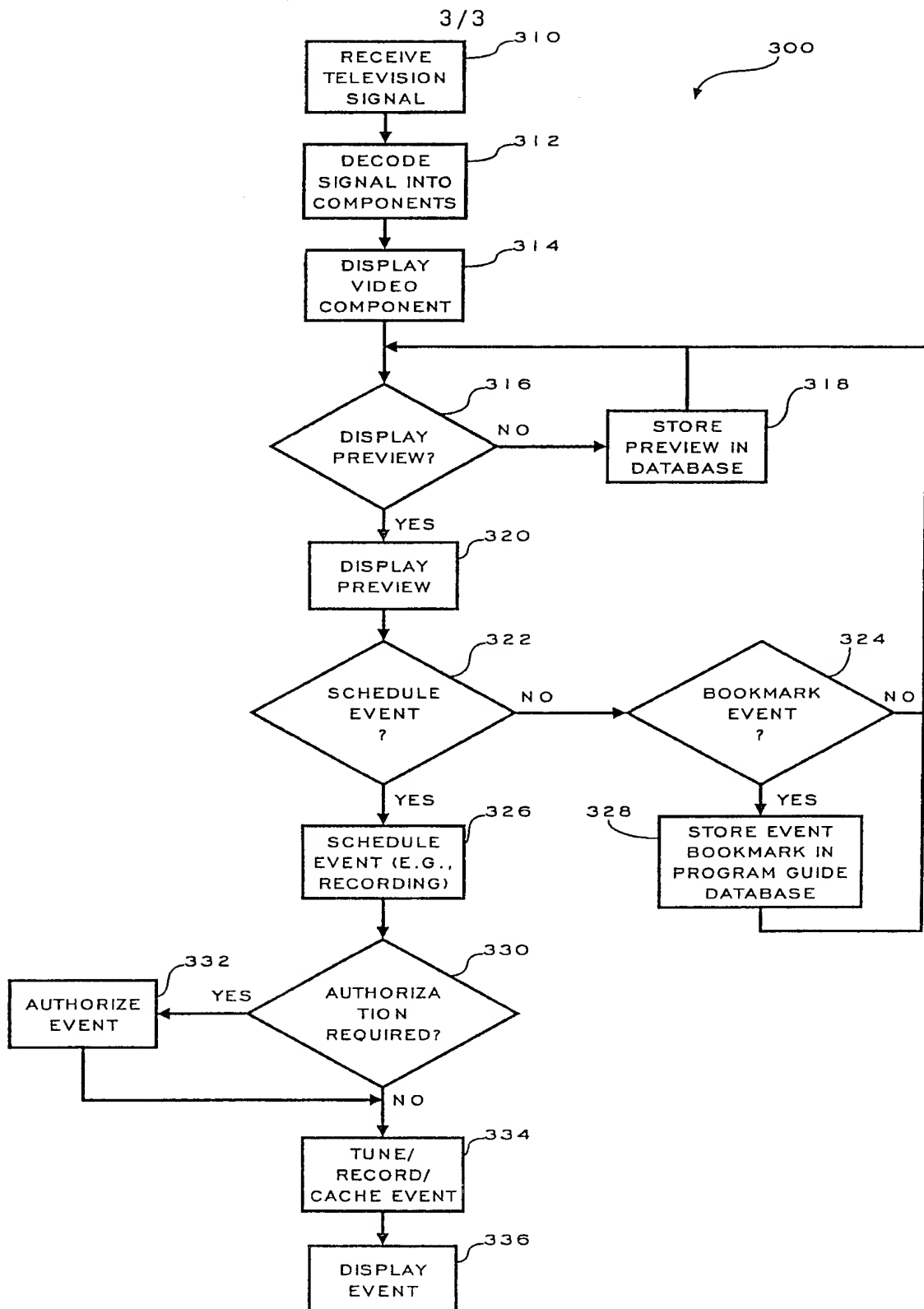


FIG. 3

# INTERNATIONAL SEARCH REPORT

Int'l. Application No

PCT/IB 00/00991

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04N5/45

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	<p>WO 99 04561 A (E-GUIDE)  28 January 1999 (1999-01-28)  page 5, line 25 - line 31  page 6, line 21 -page 7, line 28  page 9, line 16 -page 10, line 13  page 12, line 10 - line 26  page 17, line 16 -page 18, line 35  page 21, line 7 - line 15  page 22, line 15 - line 19  page 25, line 6 -page 26, line 7  -----  -/-</p>	<p>8,10,11   1,4,6,7</p>

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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- \*P\* document published prior to the international filing date but later than the priority date claimed

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- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

23 October 2000

Date of mailing of the international search report

02/11/2000

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 00/00991

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	abstract page 5, line 19 -page 7, line 12 page 34, line 2 -page 35, line 6 page 36, line 3 -page 37, line 19 page 38, line 13 -page 39, line 15 page 41, line 27 -page 44, line 10	1,4,6,7
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Information on patent family members

International Application No

PCT/IB 00/00991

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